DOCUMENT RESUME

ED 023 351 HE 000 036

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The Prediction of Academic Success of College Students Majoring in Music.
Saint Cloud State Coll., Minn.
Pub Date May 68
Note-9p.
EDRS Price MF-$0.25 HC-$0.55
Descriptors-Achievement, *Admission Criteria, *Higher Education, *Music Education, *Prediction, *Students

The identification of capable students majoring in music is difficult because of the limitations of traditionally used tools for predicting success. The purpose of this study was to investigate the relationship between selected pre-college scores and (1) college cumulative honor point and (2) cumulative honor point in music courses attained at the time of college graduation, as a basis for predicting the academic success of freshmen proposing to major in music. All available scores were obtained for the ACT, the Minnesota Scholastic Aptitude Test, (MSAT), Triggs, Reading Survey, High School Rank, Cumulative College Honor Point Ratio and Honor Point in Music Courses for 71 music majors who graduated from St. Cloud College between December 1960 and August 1967. It was found that the best single predictor for college cumulative honor point and honor point in music courses was high school rank. A combination of high school rank, Triggs and MSAT produced the best multiple correlation coefficient figure as a predictor of college cumulative honor point or degree of academic success. College admissions personnel should find these relationships very useful in detecting the more able student, but should re-evaluate these results every few years. (JS)

# THE PREDICTION OF ACADEMIC SUCCESS OF COLLEGE STUDENTS MAJORING IN MUSIC

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May, 1968

## Introduction

Difficult administrative decisions are being required with regard to student evaluation and identification as greater demands are being placed upon the faculty and facilities of our institutions of higher education. Admission to an institution is usually based upon secondary school records and scores on tests of academic potential. Institutions providing training in the fine arts have a greater problem because of the limitations of these tools as predictors of artistic achievement. Complexity of prediction varies with the types of curricular offerings and is unique to each institution primarily because of the balance between traditional liberal arts courses and courses in the artistic specialty.

The identification of capable students in the area of music remains a problem. If, however, a significant relationship exists between any of several available pre-college test scores and the known degree of academic success of a select group of college students who majored in music, this relationship could be used to assist in determining the potential of incoming students.

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## Purpose

The purpose of this study was to investigate the relationship between selected pre-college scores and 1) college cumulative honor point and 2) cumulative honor point in music courses, which were attained at the time of college graduation, as a basis for predicting the degree of academic success of freshmen college students proposing a major in music. Because all students of our sample succeeded in graduating, the cumulative honor point determines the degree with which they succeeded.

If a significant relationship at the .01 level existed between any of the above data, this information could assist in selection and retention of students and be of service to both institution and student.

## Procedure

All available scores were obtained for the American College Testing (ACT), the Minnesota Scholastic Aptitude Test (MSAT), Triggs Reading Survey, High School Rank (HSR), Cumulative College Honor Point Ratio (HPR) and Honor Point in Music Courses (MHP) for the seventy-one students who graduated from St. Cloud State College with a major in music between December, 1960 and August, 1967. The students were predominantly from high schools in the central Minnesota area. Three students were immediately eliminated because transfer status did not provide adequate data to be included.

The final sample included twenty-seven females and forty-one males. No effort was made to establish data on those students entering college and not completing the baccalaureate. The correlation coefficient was determined between HPR and pre-college scores and between MHP and pre-college scores.[1] A multiple correlation coefficient was obtained which could produce a regression equation with a high predictive capability.

## Analysis and Results

Table 1 provides a summation of an analysis of pre-college and college data. When computed with the HPR, and using Pearson product moment correlation, the correlations of HSR, Triggs, and MSAT each attained a .01 level of significance. The HPR and ACT correlation coefficient was not significant at the .01 level. Previous research indicates HSR has consistently been shown superior to standardized test scores in predicting college success (Horst, 1959); our study found HSR the best predictor of the three variables which were significant.

When MHP was correlated independently with HSR, Triggs, MSAT, and ACT, only the correlation coefficient with HSR attained a .01 level of significance. The

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[1]The writer is indebted for computational assistance given by the Computer Services Department of St. Cloud State College.

Table 1

Comparative Data Using Cumulative Honor Point and Pre-College Test Scores

| | MSAT | ACT | TRIGGS | HSR | HPR | MHP |
|---|---|---|---|---|---|---|
| Sum | 2609 | 2519 | 4572 | 4664 | 182.79 | 202.97 |
| Number | 43 | 41 | 68 | 66 | 68 | 68 |
| Mean | 60.67 | 61.44 | 67.24 | 70.67 | 2.69[2] | 2.98[2] |
| Standard Deviation | 25.18 | 22.41 | 25.22 | 19.25 | .34 | .39 |
| Correlation Coefficient | .40 | .32 | .34 | .43 | 1.00 | .81 |
| $z$[1] | 2.597 | 2.025 | 2.780 | 3.467 | | |

[1] $z = \frac{\text{Correlation Coefficient}}{\text{Standard Error}}$

[2] A=4., B=3., C=2., D=1., F=0

correlation coefficients of MHP with Triggs, MHP with MSAT, and MHP with ACT did not attain the .01 level of significance. Table 2 provides the comparative data using MHP and pre-college test scores. Using the formula

$$R_{1.23} = \frac{r^2_{12} + r^2_{13} - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}$$

the multiple correlation coefficient of HPR·HSR, Triggs was .474, or improved from the two variable figure. The best predictor was gained by applying the Doolittle multiple correlation method[2] to HPR·HSR, Triggs, MSAT, with R=.574. Data for the determination of multiple correlation appear in Table 3.

A better predictor of MHP was gained by calculating MHP·HSR, Triggs (R = .449), but no gain was made by adding MSAT because the small number of cases which contained a MSAT score resulted in a lower correlation coefficient. High school rank was proven to be by far the best single predictor of HPR and MHP. No effort was made to improve predictive efficiency by adjusting high school scores (Bloom and Peters, 1961; and Lindquist, 1963).

## Summary and Conclusions

The best single predictor for college cumulative honor point and honor point in music courses was high

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[2]The Doolittle method is not included here because of its length, but may be found in reference, McNeman, pp 182-185.

Table 2

Comparative Data Using Music Honor Point Ratio and Pre-College Test Scores

| | MSAT | ACT | TRIGGS | HSR | MHP | HPR |
|---|---|---|---|---|---|---|
| Sum | 2609 | 2519 | 4572 | 4664 | 202.97 | 182.79 |
| Number | 43 | 41 | 68 | 66 | 68 | 68 |
| Mean | 60.67 | 61.44 | 67.24 | 70.67 | 2.98 | 2.69 |
| Standard Deviation | 25.18 | 22.41 | 25.22 | 19.25 | .39 | .34 |
| Correlation Coefficient | .29 | .21 | .24 | .44 | 1.00 | .81 |
| z | 1.883 | 1.329 | 1.967 | 3.541 | | |

Table 3

Comparative Data for Determination of Multiple Correlation Coefficient for Four Variables

| | MSAT | TRIGGS | HSR | HPR | MHP |
|---|---|---|---|---|---|
| Sum | 2454 | 2728 | 2817 | 109.58 | 121.18 |
| Number | 41 | 41 | 41 | 41 | 41 |
| Mean | 59.85 | 66.54 | 68.71 | 2.67 | 2.96 |
| Standard Deviation | 25.47 | 24.37 | 17.89 | .33 | .37 |

Correlation Coefficients: ($R_{HPR \cdot HSR, TRIGGS} = .474$ $z = 4.99$)

$R_{HPR \cdot HSR, TRIGGS, MSAT} = .574$ $z = 5.48$

($R_{MHP \cdot HSR, TRIGGS} = .499$ $z = 4.63$)

$R_{MHP \cdot HSR, TRIGGS, MSAT} = .381$ $z = 2.85$

school rank (r = .43, and r = .44). A combination of high school rank, Triggs and MSAT produced the best multiple correlation coefficient figure (R = .574) as a predictor of college cumulative honor point or degree of academic success. Combining high school rank with Triggs as a predictor of music honor point gave only a slightly better result (R = .449) than using high school rank alone. All of the above correlation coefficients were significant at the .01 level.

The relationships found as stated above could be of unquestionable value to college personnel in predicting college academic success for music students and identifying the more able music student. The use of these results in evaluating applicants for admission or in predicting degree of academic success should be re-evaluated every few years (Hills, Bush, and Klock, 1966).

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